REMARKS/ARGUMENTS

Claim Objections

The Examiner objects to claims 30 and 31, contending that "when executed analyzing" is used where "when executed, analyzing" should be used. Claims 30 and 31 have been amended in the manner suggested by the Examiner.

Claim Rejections - 35 U.S.C. 112

The Examiner rejects claims 1-13 and 17-29 under 35 U.S.C. 112, first paragraph, contending that these claims contain subject matter which is not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, the Examiner contends that there is no support for how "**generating a basic optical capacity** comprising a capacity value for each optical link" is "**based on** ... the **basic packet capacity**".

The description as amended on page 4 recites text from each independent claim as originally filed. The description as amended teaches "generating a basic optical capacity based on a simulated packet transport network comprising optical network topology information and the basic packet capacity". This teaches that the basic optical capacity is generated based on the basic packet capacity, as similarly defined in pending claim 1. Therefore, Applicant submits that the description as amended provides support for the subject matter as claimed.

Furthermore, with reference to Figure 4, it can be seen that the basic optical capacity 47 is generated based on the optical network topology 43 and the basic packet capacity 45. This is described on page 10, lines 12-23. Applicant submits that Figure 4 and its related description provide support for the subject matter as claimed.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-13 and 17-29 under 35 U.S.C. 112, first paragraph.

Claim Rejections - 35 U.S.C. 103

In rejecting claims under 35 U.S.C. § 103(a), the Examiner bears the initial burden of establishing a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). *See also In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). It is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d, 1071, 1073 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966), *viz.*, (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art. Additionally, in making a rejection under 35 U.S.C. § 103(a) on the basis of obviousness, the Examiner must provide some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR Int'l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *See Oetiker*, 977 F.2d at 1445. *See also Piasecki*, 745 F.2d at 1472. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See Oetiker*, 977 F.2d at 1445; *Piasecki*, 745 F.2d at 1472.

Claims 1-4, 8-9, 11, 17-20, 24-25 and 27

The Examiner rejects claims 1-4, 8-9, 11, 17-20, 24-25 and 27 under 35 U.S.C. 103(a) as being unpatentable over U.S. 2006/0209785 ("Iovanna") in view of NetCalc6 Tutorial and a Preview of NetCalc7 ("Nasrallah"). In response, Applicant respectfully traverses the Examiner's rejection, as there are differences between the prior art and the claims. Also, it is respectfully submitted that the Examiner's reasoning for the obviousness rejection is invalid. Applicant's reasoning is detailed below.

Differences between the prior art and the claims

Claim 1 recites "generating a basic optical capacity comprising a capacity value for each optical link based on optical network topology information and the basic packet capacity". Note that the "basic packet capacity" is generated "based on packet network topology information and packet traffic information" as also recited in claim 1. Therefore, claim 1 defines how the basic

optical capacity is generated based on three variables:

1) packet traffic information,

2) packet network topology information, and

3) optical network topology information.

Reference is made to Figure 4 of the present application, which similarly teaches three variables: packet traffic matrix 41, packet network topology 42, and optical network topology 43. Therefore, in Applicant's approach, there are three separate and distinct variables used in generating the basic optical capacity.

Turning now to Iovanna, it can be seen that there is no disclosure for generating a basic optical capacity based on the aforementioned three variables. Iovanna teaches in paragraph [0086] that "the amount of available capacity on the link when the link state information is gathered is indicated with C_i^{AL}." Iovanna does not disclose how the available capacity on each link is determined, but instead discloses how a weight function that is related to the available capacity (see paragraph [0087]) is computed. For instance, Iovanna teaches in paragraph [0074] that "The weight previously assigned to the link is modified and refined (step 535) according the availability of the second resource and a final weight is assigned to the link." However, considering the availability of the second resource is not the same thing as considering Applicant's three variables as set out above. For instance, even if the availability of the second resource in Iovanna can be considered analogous to network topology information, which Applicant does not concede, this would not specifically pertain to both "packet network topology information" and separate "optical network topology information" as claimed by the Applicant.

In regards to considering "packet network topology information" and "optical network topology information" as claimed by the Applicant, the Examiner refers to Iovanna at paragraphs [0066] and [0069], respectively. Paragraph [0066] teaches that "an analysis of the network links is started at step 510 by considering a first link in the network," while paragraph [0069] teaches that "information specifically regarding the physical level is taken into account...". However, even if these portions of Iovanna relate to network topology information, which Applicant does not concede, they do not specifically relate to both "packet network topology information" and separate "optical network topology information" as claimed by the Applicant.

The Examiner concedes that "Iovanna does not expressly disclose: said packet network being a simulated packet network; said optical network being a simulated optical network; and the cost parameter comprising a basic packet capacity." Applicant agrees with the Examiner and notes that it follows that Iovanna does not teach "a simulated optical network over which the simulated packet network operates" as recited in claim 1. Applicant's approach in considering the three variables set out above for generating the basic optical capacity assume a simulated optical network over which the simulated packet network operates. Seeing as though Iovanna does not relate to a simulated optical network over which the simulated packet network operates, Iovanna has a completely different approach and therefore it is not surprising that there is no teaching for generating a basic optical capacity based on Applicant's three variables as set out above.

In view of the foregoing, Applicant submits that there are differences between the prior art and claim 1 of the present application that render claim 1 not obvious.

Invalid reasoning for obviousness rejection

The Examiner contends that "it would have been obvious to one of ordinary skill in the art to employ simulated versions of the networks of Iovanna. One of ordinary skill in the art would have been motivated to do this to test the routing strategies and algorithms of Iovanna (paragraph [0028]) before deploying them into actual networks." Even if this is true, which Applicant does not concede, this does not explain how the person skilled in the art would arrive at "A method for <u>co-modelling</u> a simulated packet network and a simulated optical network over which the simulated packet network operates" as claimed by the Applicant. For instance, the person skilled in the art might simply model a simulated optical network. Furthermore, the Examiner's reasoning does not explain how the person skilled in the art would arrive at generating the basic optical capacity based on Applicant's three variables as set out above. Therefore, the Examiner's reasoning for the obviousness rejection is not valid.

Furthermore, Applicant submits that one skilled in the art would not combine the subject matter of Iovanna and Nasrallah, as simply simulating the methods of Iovanna on a simulated network in a manner disclosed by Nasrallah would not result in the claimed invention. Iovanna

is directed to routing strategies for packets, so even if this was simulated before implementation on an existing network, which is the intended purpose of Iovanna, this does not result in the claimed invention. Applicant further submits that one skilled in the art would not consider combining the cited references as they are directed to different purposes, namely routing on existing networks and modelling of networks to accommodate expected traffic flows.

In view of the foregoing, Applicant submits that claim 1 of the present application cannot be rendered obvious under 35 U.S.C. 103(a).

Applicant submits that claims 2-4, 8-9, 11, 17-20, 24-25 and 27 are patentable over Iovanna and Nasrallah for similar reasons provided above in respect of claim 1.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-4, 8-9, 11, 17-20, 24-25 and 27 under 35 U.S.C. 103(a).

Claims 10 and 26

The Examiner rejects claims 10 and 26 under 35 U.S.C. 103(a) as being unpatentable over Iovanna in view of Nasrallah and further in view of U.S. 2004/0107382 ("Doverspike"). Applicant notes that the aforementioned claims depend on claims for which their rejection should be withdrawn. Therefore, the Examiner is respectfully requested to similarly withdraw the rejection of claims 10 and 26 under 35 U.S.C. 103(a).

Claims 12-16 and 28-32

The Examiner rejects claims 12-16 and 28-32 under 35 U.S.C. 103(a) as being unpatentable over Iovanna in view of Nasrallah and Doverspike and further in view of On IP-over-WDM Integration ("Ghani"). In response, Applicant respectfully traverses the Examiner's rejection for reasons detailed below.

Claims 12, 13, 28 and 29 depend on claims for which their rejection should be withdrawn. Therefore, the Examiner is respectfully requested to similarly withdraw the rejection of claims 12, 13, 28 and 29 under 35 U.S.C. 103(a).

Claim 14 recites "A method for analyzing survivability of a simulated packet network and a simulated optical network over which the simulated packet network operates". Therefore, claim 14 is directed to a method for analyzing survivability of a simulated packet transport network. As described on page 3, lines 22-25 of the present application, "A survivability analysis on the network allows a user to simulate a failure of any single optical link in the simulated packet transport network and examine how this affects the traffic carrying requirements of the network."

The Examiner refers to Iovanna at Figure 2, but this is merely a "schematic view showing an exemplary multi-layer communications network comprising a plurality of nodes associated to Label Switched Routers in a MPLS domain and Optical Cross Connects in an optical domain" as taught in paragraph [0040]. Iovanna simply has nothing to do with analyzing survivability of a simulated packet transport network. Nasrallah similarly is not directed to analyzing survivability of a simulated packet network.

The Examiner concedes that "Iovanna in view of Nasrallah, Doverspike, and Ghani does not expressly disclose: the method comprising the steps of: (1) establishing at least one back-up packet traffic flow tunnel for each packet link in the simulated packet network; (2) performing a series of steps, as follows, for each optical link in the simulated optical network; A. taking an optical link out of service; B. performing a series of steps, as follows, in a nested process for each packet link affected by the optical failure; i. switching all packet traffic flow on the affected packet link to an at least one back-up packet traffic flow tunnel; ii. incrementing capacity of each packet link traversed by the at least one back-up packet traffic flow tunnel; and iii. incrementing capacity of each optical link traversed by an optical connection supporting the packet link; and C. restoring initial capacity values; and (3) summing packet link capacity requirements and optical link capacity requirements."

With respect, the rejection of claim 14 is clearly improper. The MPEP states in section "2141 Examination Guidelines for Determining Obviousness under 35 USC 103" under the header "III. RATIONALES TO SUPPORT REJECTIONS UNDER 35 U.S.C. 103" that "the gap between the prior art and the claimed invention may not be 'so great' as to render the [claim] non-obvious to one reasonably skilled in the art." Seeing as though the combination of four

documents fail to disclose several limitations of claim 14, the gap between the prior art and the claimed invention is clearly so great that the claim is rendered non-obvious to one reasonably skilled in the art.

Furthermore, Applicant notes that even if the Patent Office is able to articulate and support a suggestion to combine the references, it is impermissible to pick and choose elements from the prior art while using the application as a template—see *In re Fine*, 837 F.3d 1071 (Fed. Cir. 1988). It is respectfully submitted that combining Iovanna, Nasrallah, Doverspike, and Ghani is an attempt to arrive at claim 14 while using the present application as a template. This attempt is flawed because the Examiner's proposed combination does not account for the fact that the prior art has little or nothing to do with claim 14 and fails to disclose several limitations.

Moreover, the Examiner's reasoning is severely lacking. For instance, the Examiner states that "Regarding step B, one would obviously increment the capacity assignment for the optical links traversed by the protection mechanism to their correct assignment values." However, no rational is provided whatsoever for this allegation. As noted above, the Examiner must provide some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR Int'l. Co. v. Teleflex Inc.*,127 S.Ct. 1727, 1741 (2007). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *See Oetiker*, 977 F.2d at 1445. Seeing as though the Examiner is missing rational for rejection claim 14, the Examiner has not fulfilled the initial burden for establishing a proper rejection under 35 U.S.C. 103.

In view of the foregoing, Applicant submits that claim 14 of the present application cannot be rendered obvious under 35 U.S.C. 103(a).
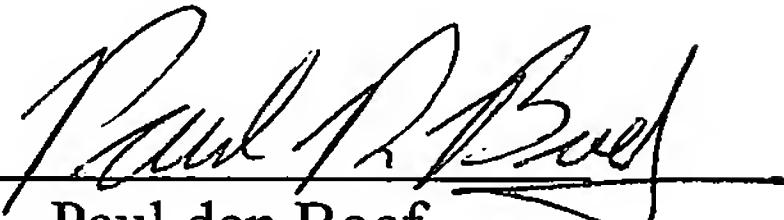
Applicant submits that claims 15, 16 and 30-32 are patentable over Iovanna and Nasrallah for similar reasons provided above in respect of claim 14.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 12-16 and 28-32 under 35 U.S.C. 103(a).

Favorable consideration is requested.

Respectfully submitted,

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